: 4150-31)

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Office of the Secretary

Findings of Research Misconduct

AGENCY: Office of the Secretary, HHS.

ACTION: Notice.

SUMMARY: Findings of research misconduct have been made against Ritankar Majumdar, Ph.D. (Respondent), who was a postdoctoral fellow in the intramural program of the Laboratory of Cellular and Molecular Biology (CMB), Center for Cancer Research (CCR), National Cancer Institute (NCI), National Institutes of Health (NIH). Respondent engaged in research misconduct in research supported by U.S. Public Health Service (PHS) funds, specifically the NCI Intramural Research Program. The administrative actions, including supervision for a period of three (3) years, were implemented beginning on August 15, 2022, and are detailed below.

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION: Notice is hereby given that the Office of Research Integrity (ORI) has taken final action in the following case:

Ritankar Majumdar, Ph.D., National Institutes of Health: Based on the report of an investigation conducted by NIH and analysis conducted by ORI in its oversight review, ORI found that Dr. Ritankar Majumdar, former postdoctoral fellow in the intramural program of the Laboratory of CMB, CCR, NCI, NIH, engaged in research misconduct in research supported by PHS funds, specifically the NCI Intramural Research Program.

ORI found that Respondent engaged in research misconduct by knowingly or recklessly falsifying and/or fabricating data in the following one (1) published paper, one (1) manuscript, three (3) PHS grant applications, and fifteen (15) presentations:

- Exosomes Mediate LTB4 Release during Neutrophil Chemotaxis. *PloS Biol*. 2016 Jan 7; 14(1):e1002336; doi: 10.1371/journal.pbio.1002336 (hereafter referred to as "*PloS Biol* 2016"). Retraction in: *PLoS Biol.* 2021 Jul 7;19(7):e3001320; doi: 10.1371/journal.pbio.3001320.

- Biogenesis of Leukotriene B4-Containing Exosomes at the Nuclear Envelope. Manuscript accepted for publication in *Nature Cell Biology* in 2019 and withdrawn (hereafter referred to as the "*NCB* manuscript").

- R01 AI145072-01, "Signal relay during directed cell migration," submitted to the National Institute of Allergy and Infectious Diseases (NIAID), NIH, on 06/04/2018.

- R01 AI145072-01A1, "Signal relay during directed cell migration," submitted to NIAID, NIH, on 04/16/2019.

- R01 AI152517-01, “Signal relay during directed cell migration,” submitted to NIAID, NIH, on 08/16/2019, funded from 07/10/2020-6/30/2025.

- LTB4-synthesizing enzymes aggregate on nuclear lipid rafts that bud exosomes to mediate signal relay during neutrophil chemotaxis. Poster Presentation at the University of Maryland (UMD) in 2016 (hereafter referred to as the “UMD 2016 presentation”).

- Exosome secretion as an effective mechanism of LTB4 -mediated signal relay in migrating neutrophils. Oral presentation at the American Society for Exosomes and Microvesicles (ASEM) on 10/17/2015 (hereafter referred to as the “ASEM 2015 presentation”).

- Chemotactic gradient amplification through the release of extracellular vesicles during eukaryotic chemotaxis. Oral presentation at Collective Dynamics in Microorganisms and Cellular Systems (CDMCS) on 05/25/2016 (hereafter referred to as the “CDMCS 2016 presentation”).

- Signal Relay is Mediated by Exosome Release during Dictyostelium and Neutrophil Chemotaxis. Oral presentation at International CIM (Cells in Motion) Symposium 2015 on 09/14/2015 (hereafter referred to as the “CIM 2015 presentation”).

- Do ESCRTS DR(ea)M of nuclear MVBs? Interplay of ESCRT Dependent and Independent processes in Exosome Biogenesis during Relay of Chemotactic Signals in Neutrophils. Poster presentation at Directed Cell Migration Gordon Research Conference (GRC) from 01/22/2017-01/27/2017 (hereafter referred to as the “GRC 2017 presentation”).

- Nuclear Lipid Microdomains as a Novel Niche for Exosome Biogenesis: Interplay of ESCRT Dependent and Independent Processes During Relay of Chemotactic Signals in Neutrophils OR Do ESCRTs DR(ea)M of nuclear MVBs? Oral presentation at Directed Cell Migration Gordon Research Seminar (GRS) on 01/21/2017 (GRS2017.pptx) (hereafter referred to as the "GRS 2017 presentation").

- Lab Meeting on 02/13/15 (hereafter referred to as "Lab Meeting 02/13/15").

- Lab Meeting in August 2015 (hereafter referred to as "Lab Meeting 08/2015").

- Lab Meeting on October 7, 2016 (hereafter referred to as "Lab Meeting 10/07/2016").

- Lab Meeting in July 2016 (hereafter referred to as "Lab Meeting 07/2016").

- A series of fortunate events. Lab Meeting in December 2016 (hereafter referred to as "Lab Meeting 12/2016").

- Lab Meeting on November 4, 2015 (hereafter referred to as "Lab Meeting 11/04/2015").

- Exosome secretion as an effective mechanism of LTB4 mediated signal relay in migrating neutrophils. LCMB Presentation in 2015 (hereafter referred to as "LCMB 2015 presentation V1").

- Exosome secretion as an effective mechanism of LTB4 mediated signal relay in migrating neutrophils. LCMB Presentation in 2015 (hereafter referred to as "LCMB 2015 presentation V2").

- Extracellular Vesicles mediate signal relay during Chemotaxis. LCMB Seminar in 2014 (hereafter referred to as "LCMB 2014 seminar").

- Data compilation for LCMB Seminar in 2016 (hereafter referred to as "LCMB 2016 seminar data 1").

- A series of fortunate events: Do ESCRTs DR(ea)M of nuclear MVBs? Oral presentation at LCMB in 2016 (hereafter referred to as "LCMB 2016 seminar data 2").

Specifically, ORI found that:

- Respondent knowingly or recklessly falsified and/or fabricated electron microscopic (EM) image data for the formation of multivesicular bodies (MVBs) in migrating primary neutrophils following chemoattractant activation by:

  — adding and/or removing 5-lipoxygenase (5-LO) immunogold signal and/or cell organelle membranes and/or subcellular vesicles in:

    - *NCB* manuscript:

      – Figure 1B, also included in:

        - Figure 4C in R01 AI145072-01
        - Figure 3B in R01 AI145072-01A1

        - Slide 8 in Lab Meeting 10/07/2016
        - Slide 2 in Lab Meeting 12/2016
        - Column 2, Row 1 in GRC 2017 presentation 1

    - Figures 1C and 1D

    - Figure 7D, also included in:

        - Slide 14 in Lab Meeting 10/07/2016
        - Slide 3 in Lab Meeting 12/2016
        - Column 2 Row 4 in GRC 2017 presentation 1

- *PloS Biology* 2016:

    - Figure 2A, also included in:

        - Figure 11 in UMD 2016 presentation

    - Figure 2B, also included in:

        - Slide 20 in LCMB 2015 presentation V1
        - Slide 20 LCMB 2015 presentation V2

    - Figure 2C, also included in:

        - Slide 20 in LCMB 2015 presentation V1

- Slide 22 in LCMB 2015 presentation V2
- Slide 6 in GRS 2017 presentation 2

– Figure 2Giii, also included in:

- Figure 3 in R01 AI145072-01
- Figure 2 in R01 AI145072-01A1
- Figure 2 in R01 AI152517-01
- Slide 20 in Lab Meeting 08/2015
- Slide 5 in Lab Meeting 07/2016
- Slide 17 in Lab Meeting 11/04/2015
- Slide 18 in LCMB 2015 presentation V1
- Slide 68 in LCMB 2015 presentation V2
- Slides 7 and 13 in LCMB 2016 seminar data 1
- Slides 6 and 12 in LCMB 2016 seminar data 2
- Figure 1b in UMD 2016 presentation
- Slide 16 in ASEM 2015 presentation
- Slide 32 in CDMCS 2016 presentation
- Slide 46 in CIM 2015 presentation
- Column 1, Row 4 in GRC 2017 presentation 1
- Slides 10 and 12 in GRS 2017 presentation 2

➢ R01 AI145072-01A1:

– Figure 3D, also included in:

- Figure 3D in R01 AI152517-01
- Figure 4Diii in AI145072-01
- Slide 4 in Lab Meeting 12/2016

— presenting EM images from the same source and falsely relabeling them to represent different experimental results in:

➢ Figures 1A and 7D in the *NCB* manuscript

➢ Figures 2A and 2D in *PloS Biology* 2016

- Respondent knowingly or recklessly falsified and/or fabricated immunoblot image data for chemoattractant activation of MVBs in migrating primary neutrophils in:

— Supplemental Figure 2B of the *NCB* manuscript:

➢ by copying the panel representing "5-LO" in Figure 1C in *PloS Biology* 2016, and flipping, re-sizing, and relabeling it to represent "Flotillin"

➢ by copying the panel representing "5-LO" in the second row of the left column in Slide 9 in Lab Meeting 02/13/15 and rotating, resizing, and relabeling to represent "Laminin"

- Respondent knowingly or recklessly falsified and/or fabricated time-lapse confocal microscopic image data for nuclear envelope vesicle formation by falsely presenting still images in reverse order from the original movies in the *NCB* manuscript:

— Supplemental Movie S1

— Figure 2A, also included in:

- Figure 4 in R01 AI145072-01A1
- Slide 8 in Lab Meeting 07/2016
- Figure 11 in UMD 2016 presentation
- Slide 38 in LCMB 2016 seminar data 1

Dr. Majumdar entered into a Voluntary Settlement Agreement (Agreement) and voluntarily agreed to the following:

(1) Respondent will have his research supervised for a period of three (3) years beginning on August 15, 2022 (the "Supervision Period"). Prior to the submission of an application for PHS support for a research project on which Respondent's participation is proposed and prior to Respondent's participation in any capacity in PHS-supported research, Respondent will submit a plan for supervision of Respondent's duties to ORI for approval. The supervision plan must be designed to ensure the integrity of Respondent's research. Respondent will not participate in any PHS-supported research until such a supervision plan is approved by ORI. Respondent will comply with the agreed-upon supervision plan.

(2) The requirements for Respondent's supervision plan are as follows:

i. A committee of 2-3 senior faculty members at the institution who are familiar with Respondent's field of research, but not including Respondent's supervisor or collaborators, will provide oversight and guidance for a period of three (3) years from

the effective date of the Agreement. The committee will review primary data from Respondent's laboratory on a quarterly basis and submit a report to ORI at six (6) month intervals setting forth the committee meeting dates and Respondent's compliance with appropriate research standards and confirming the integrity of Respondent's research.

ii. The committee will conduct an advance review of each application for PHS funds, or report, manuscript, or abstract involving PHS-supported research in which Respondent is involved. The review will include a discussion with Respondent of the primary data represented in those documents and will include a certification to ORI that the data presented in the proposed application, report, manuscript, or abstract are supported by the research record.

(3) During the Supervision Period, Respondent will ensure that any institution employing him submits, in conjunction with each application for PHS funds, or report, manuscript, or abstract involving PHS-supported research in which Respondent is involved, a certification to ORI that the data provided by Respondent are based on actual experiments or are otherwise legitimately derived and that the data, procedures, and methodology are accurately reported and not plagiarized in the application, report, manuscript, or abstract.

(4) If no supervision plan is provided to ORI, Respondent will provide certification to ORI at the conclusion of the Supervision Period that his participation was not proposed on a research project for which an application for PHS support was submitted and that he has not participated in any capacity in PHS-supported research.

(5) During the Supervision Period, Respondent will exclude himself voluntarily from serving in any advisory or consultant capacity to PHS including, but not limited to, service on any PHS advisory committee, board, and/or peer review committee.

Dated: September 1, 2022.

Wanda K. Jones,

Acting Director, Office of Research Integrity,

Office of the Assistant Secretary for Health.

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